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| 10/802,387 | 03/17/2004 | Premakaran T. Boaz | 2678.2011-000 | 3670 |
| 21005 | 7590 | 12/13/2007 | | |
| HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133 | | | EXAMINER IP, SIKYIN | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/802,387

Applicant(s)

BOAZ ET AL.

Examiner

Sikyln Ip

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-18 and 20-40 is/are pending in the application.
- 4a) Of the above claim(s) 4,7-15 and 21-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,6,16-18,20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 9/27/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5, 6, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5389160 to Melton et al in view of USP 6365973 to Koning (PTO-1449) and further teaching of JP 57152438.

Melton discloses the features including the claimed Sn-Bi-Ag solder and flux (col. 2, lines 30-55 and col. 1, lines 57-61). Melton further teaches to add up to 4 wt.% alloy

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agents to enhance mechanical properties (col. 3, lines 43-46). Melton does not disclose coated filler and Fe-Ni (Invar alloy) filler. However, Koning discloses fillers can reduce solder coefficient of thermal expansion (CTE) (col. 3, lines 1-10). The coated fillers would improve wettability of the filler (col. 3, lines 1-20). JP 57152438 discloses Fe-Ni alloys would enhance thermal expansion property (see abstract) in the same field of endeavor or the analogous metallurgical art. Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to provide solder of Melton with coated Fe-Ni fillers as taught by Koning and JP 57152438 because the set forth benefits and function entail the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties.

Claims 3 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5389160 to Melton et al in view of USP 6365973 to Koning and JP 57152438 as applied to claims above, and further in view of Beal (PTO-1449).

Melton et al in view of JP 57152438 disclose the features substantially as claimed as set forth in the rejection above except for the flux ingredients. However, Beal discloses claimed inorganic fluxes are known in the same field of endeavor or the analogous metallurgical art of cited references (see page 434, low-right col). Therefore, it would have been obvious to one having ordinary skill in the art of the cited references at the time the invention was made to provide Melton with fluxes as taught by Beal in order to improve/provide surface condition (See Beal, page 434 "Fluxes").

Double Patenting

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The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3, 5, 6, 16-18, and 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3-6 of copending Application No. 10/744326. Although the conflicting claims are not identical, they are not patentably distinct from each other because claimed solder compositions and additives are overlapped.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed September 27, 2007 have been fully considered but they are not persuasive.

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Applicants argue that the instant amended claim subject matters are not in copending Application No. 10/744326. But, instant claim 1 includes claim limitation in copending claim 1, for example.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants argue that the instant claimed solder does not include nickel iron powder. But, instant claimed Invar (Ni-Fe) granular reads on the nickel iron powder.

Applicants' argument in page 9, first full paragraph of instant remarks is noted. But, the Fe-Ni alloy in JP 57152438 is added for thermal expansion buffer not impurity.

Applicants' argument with respect to Beal is noted. But Beal is merely cited to show claimed fluxes are known common fluxes in soldering art.

Applicants' argument in instant remarks is noted. Applicants' attention is directed to rejections above that Melton discloses Sn-Bi-Ag solder and flux (col. 2, lines 30-55 and col. 1, lines 57-61). Melton further teaches to add up to 4 wt.% alloy agents to enhance mechanical properties (col. 3, lines 43-46). JP 57152438 discloses Fe-Ni alloys would enhance thermal expansion property (see abstract). Beal discloses claimed inorganic fluxes are known in the same field of endeavor or the analogous metallurgical art of cited references (see page 434, low-right col).

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Applicants' argument directs to page 429 of Beal is noted. But, those impurities are directed to leaded solders. Nonetheless, alloying elements can be added/removed for desired properties in alloying art. It has been held that combining known ingredient having known functions, to provide a composition having the additive effect of each of the known functions is within realm of performance of ordinary skill artisan. In re Castner, 186 USPQ 213 (217). The use of conventional materials to perform their known functions in a conventional process is obvious. In re Raner, 134 USPQ 343 (CCPA 1962).

Conclusion

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121; 37 C.F.R. Part §41.37 (c)(1)(v); MPEP §714.02; and MPEP §2411.01(B).

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.


SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
December 9, 2007